

In re Application of: Gad KEREN et al
Serial No.: 09/839,643
Filed: April 20, 2001
Office Action Mailing Date: July 10, 2009

Examiner: NGUYEN Camtu Tran
Group Art Unit: 3772
Attorney Docket: 34948

In the Claims:

1-48. (Cancelled)

49. (Currently Amended) A method of decreasing blood pressure in a heart chamber, comprising:

implanting a shunt between a left atrium and a right atrium of the heart,
thereby enabling blood flow between said left atrium and said right atrium and decreasing blood pressure in an atrium.

50. (Previously Presented) The method of claim 49, wherein said implanting is effected by positioning said shunt through a septum of the heart and anchoring said shunt using fixation elements attached thereto.

51. (Previously presented) The method of claim 49, comprising allowing an amount of blood suitable to substantially reduce blood pressure in the left atrium, to flow from said left atrium to said right atrium via said shunt when the pressure differential between said left atrium and said right atrium reaches a threshold.

52-58. (Cancelled)

59. (Previously Presented) A device for decreasing blood pressure in a heart chamber, comprising:

a shunt being positionable within a septum between a left atrium and a right atrium of the heart and having fixation elements for attaching said shunt to said septum, said shunt being for enabling blood flow between said left atrium and said right atrium.

60. (Previously Presented) The device of claim 59, wherein said shunt further includes a valve.

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61. (Cancelled)

62. (Withdrawn) A shunt according to claim 59, wherein the valve is purely mechanical.

63-67. (Cancelled)

68. (Previously Presented) The device of claim 59, wherein said shunt has a diameter of less than 5 mm.

69. (Previously Presented) The device of claim 60, wherein said valve is configured to allow passage of a relatively small volume of blood relative to an ejection volume of the heart.

70. (Previously Presented) The device of claim 59, wherein said shunt has a length not substantially greater than a thickness of said septum.

71. (Previously Presented) The device of claim 59, wherein said valve allows continuous flow of a small amount of blood.

72. (Previously Presented) The device of claim 71, further comprising a pump which induces the continuous flow of blood through the valve.

73. (Previously Presented) The device of claim 60, wherein said valve is capable of gradual opening and/or closing.

74-77. (Cancelled)

78. (Previously Presented) The device of claim 59, wherein said fixation elements are attached to opposite sides of said shunt.

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79-83. (Cancelled)

84. (Currently amended) A method of controlled decreasing of blood pressure in a heart chamber, comprising:

implanting a valve in a heart septum between two heart atria, such that said valve opens responsive to a pressure level of an exacerbated state of heart failure but not under normal pressures of systole and diastole of a normal heart.

85. (Cancelled)

86. (Previously Presented) The method of claim 84, wherein implanting said valve in the heart comprises implanting between a left atrium and a right atrium, such that opening said valve allows flow of blood from the left atrium to the right atrium.

87. (Previously Presented) The method of claim 84, wherein said valve is configured to open only when the pressure in the left atrium is above a predetermined threshold.

88. (Previously Presented) The method of claim 87, wherein said valve is configured to open only when the pressure in the left atrium is above 12mmHg.

89. (Previously Presented) The method of claim 84, wherein implanting said valve comprises implanting in a manner which leads blood to a right ventricle of said heart.

90-91. (Cancelled)

92. (Previously Presented) A method according to claim 84, wherein said valve allows passage of blood therethrough only during diastole.

93-96. (Cancelled)

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97. (Previously Presented) A method according to claim 84, wherein said valve includes a sensor for sensing a state of the heart and wherein said valve opens at least partially responsive to readings of said sensor.

98. (Previously Presented) A method according to claim 84, wherein said valve is configured to open when the heart suffers from an exacerbated absolute arterial pressure or an exacerbated differential arterial pressure.

99. (Previously Presented) A method according to claim 84, wherein said valve is configured to close after drainage of an amount of blood sufficient to reduce the mean left atrium pressure by 5mmHg.

100. (Previously Presented) A method according to claim 84, wherein said valve is configured to open in response to a differential pressure level between its opposite ends.

101. (Previously Presented) The method of claim 84, wherein said valve is implanted via a percutaneous procedure.

102. (Previously Presented) The method of claim 84, wherein said valve is implanted in a transseptal hole.

103. (Previously Presented) A device for installation in a heart, comprising:
a shunt implantable in a septum between atria of the heart;
a sensor adapted to sense a parameter indicative of a state of the heart; and
a controller adapted to control flow through said shunt in response to readings from the sensor.

104. (Previously Presented) The device of claim 103, wherein said sensor comprises a pressure sensor.

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105. (Previously Presented) The device of claim 103, further comprising a valve for regulating flow through said shunt.

106. (Previously Presented) The device of claim 105, wherein said controller opens said valve when said sensor indicates a pressure above 12mmHg.

107. (Previously Presented) The device of claim 105, wherein said controller opens the said valve when said sensor indicates a pressure above 15mmHg.

108. (Previously Presented) The device of claim 105, wherein said controller opens said valve when said sensor indicates a pressure above 20mmHg.

109-112. (Cancelled)